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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/510,966	02/21/2000	Rohit V Gaikward	1789-01910	1682

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EXAMINER	
TIEU, BINH KIEN	
ART UNIT	PAPER NUMBER
2643	

DATE MAILED: 03/31/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/510,966	GAIKWARD ET AL.	
	Examiner	Art Unit	
	BINH K. TIEU	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Bremer et al. (U.S. Pat. #: 6,647,058).

Regarding claim 1, Bremer et al. ("Bremer") teaches a communication system, as shown in figure 2, that comprises:

a subscriber modem (i.e., receiving modem 14);

a central office modem (i.e., transmitting modem 12); and

a communication channel coupled between the subscriber modem and the central office modem (i.e., xDSL communications line 16 having uplink and downlink 54 and 56) and configured to transport uplink signals from the subscriber modem to the central office modem, and further configured to transport downlink signals from the central office modem to the subscriber modem (col.5, lines 5-37),

wherein the power spectral density of the transmitted uplink signals is proportional to the power spectral density of the transmitted downlink signals (col.5, lines 38-51); and

wherein the power spectral density of the transmitted uplink signals is substantially unequal to the power spectral density of the transmitted downlink signals (col.6, lines 1-43).

3. Claim 2 is rejected under 35 U.S.C. 102(e) as being anticipated by Dyke (U.S. Pat.. #: 6,069,922).

Regarding claim 2, Dyke teaches a communication system, as shown in figure 2, that comprises:

a subscriber modem (i.e., DSP/ATU-R modem 26);

a central office modem (i.e., DSP/ATU-C modem 24); and

a communication channel coupled between the subscriber modem and the central office modem (i.e., communications line 102) and configured to transport uplink signals from the subscriber modem to the central office modem, and further configured to transport downlink signals from the central office modem to the subscriber modem (col.5, line 36 – col.6, line 27),

Wherein at frequencies below a selected frequency M.sub.E2F, the power spectral density of the transmitted uplink signals is proportional to the power spectral density of the transmitted downlink signals by a positive scale factor, and

Wherein at frequencies above M.sub.E2F, the power spectral density of the uplink signals are limited to one or more uplink frequency bands and the downlink signals are limited to one or more downlink frequency bands that are disjoints from the uplink frequency bands, and wherein the total bandwidth of the uplink frequency bands is proportional to the total band width of the downlink frequency bands by the same positive scale factor (see figure 3, note col.7, line 29 – col.8, line 13).

4. Claim 3 is rejected under 35 U.S.C. 102(e) as being anticipated by Enns et al. (U.S. Pat. #: 6,658,010).

Regarding claim 3, Enns et al. ("Enns") teaches a communication system, as shown in figure 4A, that comprises:

a subscriber modem (i.e., terminal equipment 72, 74);

a central office modem (i.e., transmitter 76 and receiver 78); and

a communication channel coupled between the subscriber modem and the central office modem (i.e., downstream 77 and upstream 79) and configured to transport uplink signals from the subscriber modem to the central office modem, and further configured to transport downlink signals from the central office modem to the subscriber modem,

Wherein when the connection is initiated, frequency bands are allocated to the uplink and downlink power signals so that the total uplink and downlink capacity is maximized over the channel for predetermined uplink and downlink average signal power (col.14, line 65 – col.15, line 11; col.18, lines 44-67 and col.19, line 55 – col.20, line 16);

Wherein the predetermined uplink and downlink average powers are unequal (col.16, lines 37-49 col.19, lines 1-52).

5. Claims 4-5, 9, 13-14 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Gross et al. (U.S. Pat. #: 6,549,520 **previous cited in the "*Conclusion*" section of 1st Office Action**).

Regarding claims 4 and 13, Gross et al. ("Gross") teaches a modem and a method for communicating over a communications channel with another modem, wherein the modem is configure to:

receiving an uplink signal having a transmitted uplink power spectral density ("PSD"); and

transmitting a downlink signal with a transmitted downlink PSD that is proportional to the transmitted uplink PSD (col.11, line 52 – col.12, line 45 and col.22, line 50 – col.23, line 9).

Regarding claims 5 and 14, note col.4, lines 24-50.

Regarding claims 9 and 18, Gross teaches a modem and a method for communicating over a communications channel between at least two modems, the modem and the method comprising features of:

jointly optimizing a transmitted uplink PSD and a transmitted downlink PSD to maximize a sum of uplink and downlink capacities subject to a predetermined average uplink power and a predetermined average downlink power, wherein the predetermined average uplink and downlink power are unequal (col.8, lines 5–60);

receiving an uplink signal having the optimized transmitted uplink power spectral density ("PSD"); and

transmitting a downlink signal with a transmitted downlink PSD (col.11, line 52 – col.12, line 45 and col.22, line 50 – col.23, line 9).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 6-8, 10-12, 15-16 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross et al. (U.S. Pat. #: 6,549,520 in view of Dyke (U.S. Pat. #: 6,069,922).

Regarding claims 6 and 15, Gross teaches a modem and a method for communicating over a communications channel between at least two modems, the modem and the method comprising features of:

receiving an uplink signal having a transmitted uplink power spectral density ("PSD"); and

transmitting a downlink signal with a transmitted downlink PSD (col.11, line 52 – col.12, line 45 and col.22, line 50 – col.23, line 9).

It should be noted that Gross fails to clearly teach the proportional and frequency bands between the transmitted downlink and uplink PSDs at different frequencies of a selected frequencies M-sub-E2F. However, Dyke teaches such features in col.7, line 33 – col.8, line 12 for a purpose of monitoring the effects of signal profiles of downstream and upstream communications.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of such features of the selected frequencies M-sub-E2F, as taught by Dyke, into view of Gross in order to adjust PSDs and to eliminate crosstalk and interferences in downstream and upstream communication channels.

Regarding claims 7 and 16, Gross further teaches limitations of the claim in col.4, lines 24-50.

Regarding claims 8 and 17, Dyke further teaches limitations of the claim in col.8, line 52 – col.9, line 49.

Regarding claims 10-12 and 18-21, Gross teaches all subject matters as claims above, except for the proportional and frequency bands between the transmitted downlink and uplink PSDs at different frequencies of a selected frequencies M-sub-E2F. However, Dyke teaches such features in col.7, line 33 – col.8, line 12 for a purpose of monitoring the effects of signal profiles of downstream and upstream communications.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of such features of the selected frequencies M-sub-E2F, as taught by Dyke, into view of Gross in order to adjust PSDs and to eliminate crosstalk and interferences in downstream and upstream communication channels.

Conclusion

9. Although the Brown (US. Pat. #: 6,226,356) and Chen (US. Pat. #: 6,330,462) are not applied into this Office Action, they are also called to Applicants attention. They may be used in future Office Action(s). Both these references are also concerned with adjustments of power spectral density of uplink and downlink signals.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh K. Tieu whose telephone number is (703) 305-3963 and E-mail address: BINH.TIEU@USPTO.GOV.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz, can be reached on (703) 305-4708 and **IF PAPER HAS BEEN MISSED FROM THIS OFFICIAL ACTION PACKAGE, PLEASE CALL Customer Service at (703) 306-0377 FOR THE SUBSTITUTIONS OR COPIES**.

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist, tel. No. 703-305-4700).

BINH TIEU
PRIMARY EXAMINER

Art Unit 2643

Date: March 29, 2004